

REMARKS:

Claims 23-31 are currently pending in the present application. Claims 1-22 have been cancelled without prejudice. Claim 23 has been amended in connection with the Request for Continued Examination filed herewith. Specifically, the claim has been amended to recite that the buried channel dopant has is of a first conductivity type and is implanted in a substrate of a second conductivity type. Support for these amendments is provided throughout the present specification including FIGS. 5 and 6. Claims 27-31 have been added. Support for these may be found in the original claims and in the specification at page 7. No new matter is introduced by these amendments.

Claim Rejections Under 35 USC 103:

Claims 23-26 were rejected under 35 USC 103(a) as being unpatentable over Ueno (US 5,998,828) in view of Kusonoki and Kizilyalli. Ueno relates generally to a semiconductor device achieving high voltage threshold values by different concentrations of nitrogen in the gate electrode (abstract). Although the Examiner pointed to FIGs. 5-8 and col. 7, lines 19-30, Ueno teaches only a conventional buried channel for threshold voltage implant purposes at those locations. That is, the channel dope layer 104 is doped with the same type impurity as the substrate (well). See Tables 1-5. The channel described in Ueno as a channel doping layer is nothing more than a threshold adjust implantation. That is, Ueno's channel is doped with the same type dopant as the underlying substrate.

Claim 23 has been amended and the rejection is believed overcome thereby. More specifically, Ueno in combination with Kusonoki and Kizilyalli does not teach or suggest the buried channel being doped with a predetermined dopant of a first conductivity type and a peak concentration of the dopant positioned at a selected level in the substrate of a second conductivity type. The Examiner points to col. 7, lines 60-65 for further support for his assertion that Kusonoki teaches "an effective increase of the gate dielectric layer". But this passage relates to the 5th embodiment of the invention. The fifth embodiment refers to FIG. 22 which is identified as including a gate having a conductivity type the same as the source and drain regions (and hence different from the substrate). Under the biasing conditions described any depletion layer formed (either 23a or 23b) is formed in the gate electrode, not in the substrate under the gate electrode as occurs with the specific buried channel doping as recited

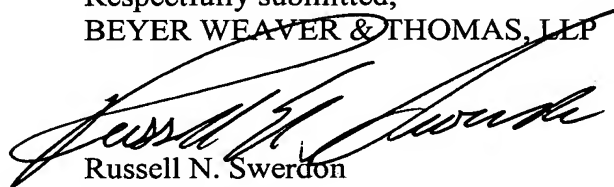
in claim 23. Thus, for at least this reason, Ueno in combination with the other cited references fails to teach or suggest all elements of claim 23.

Claims 24-31 are dependant claims which are believed to be patentable over the art of record for at least their dependency from an allowable independent claim. Moreover, the dependent claims recite additional limitations, and are therefore allowable for these reasons as well. For example, none of the art of record teaches or suggests a threshold voltage implant in the first device having the same concentration and conductivity type as the buried channel implant in the second device as recited by claim 29. In light of the above distinctions in the independent claims, further discussion of the dependent claims is deemed unnecessary.

Conclusion

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below. If any fees are due over and above the fees provided with the amendment, such fees may be charged to deposit account No. 12-2252 (client docket 01-721).

Respectfully submitted,
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